

1. What is our purpose?

To inquire into the following:

Transdisciplinary theme: **How the World Works**

Central idea

We use science to investigate and understand what exists.

(Change suggestion- Scientific investigation helps us understand what exists and influences our lives.)

Summative assessment task(s):

Reflect and compare an experiment done in class with an experiment done by a scientist. Assessed using a teacher-created rubric.

Create and perform a play in small groups based upon being scientists who have discovered life on another planet. Show what you should do by referring to the scientific inquiry method.

Create an accompanying flow chart to present to the class.

Peer and teacher assessed using a rubric.

Assessment Tools:

- Anecdotal notes
- Observations
- Student conferencing
- Rubrics

Class/grade: 3

Age group: 8/9 years

School: School code:

Title: **I am a Scientist**

Teachers:

Date: Term 1 2011

Proposed duration: number : 6 weeks



PYP planner

2. What do we want to learn?

What are the key concepts (**form, function**, causation, change, **connection**, perspective, responsibility, reflection) to be emphasised within this inquiry?

Related Concepts: interpretation, evidence, fair testing

What lines of inquiry will define the scope of the inquiry into the central idea?

Connections with science in everyday life

- Science and fair testing
- Forms scientific methods take

What teacher questions/provocations will drive these inquiries?

1. Why do we need science / scientists?
2. What are the benefits of science?
3. How do we investigate scientifically?
4. How do scientists gather evidence and why?

3. How might we know what we have learned?

This column should be used in conjunction with “How best might we learn?”

What are the possible ways of assessing students' prior knowledge and skills?
What evidence will we look for?

Pre-Assessment:

- KWL- chart 'What is science'?
- 'What if?' thinking key: What if people did not study science?
- Brainstorming and discussion

What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?

Formative Assessment:

- Imagine you are a scientist who has discovered a new plant species in a dark cave. What steps of the scientific inquiry method would you employ?
- Weekly science lab experiments, reports and reflections.
- Select a scientific phenomenon to explore. Show your understanding by presenting a science experiment and the results from your experiment to the class and to school community in a science fair. Assessed on scientific inquiry method with a pre-understood rubric.

5. What resources need to be gathered?

What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?

Websites- www.nyelabs.com
www.listverse.com/2007/12/03/top-10-coolest
www.incrediblescience.co.nz

Song- Dandywarhols "I am a Scientist"

How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?

Science labs at school,. The central idea will be displayed on classroom wall and questions will be displayed on a wonderwall and the evidence (photos etc) of their experiments will be displayed.

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4. How best might we learn?

What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?

- Imagine an alien scientist has arrived on Earth and has never seen a plant. What questions would it ask? Use these questions as whole class inquiries.
- What science do we see happening in our classroom? School? Kitchen? Brainstorm/discussion.
- Do a variety of experiments whilst following the scientific inquiry method and reflect upon the process and results
- Discuss the necessity of experiments and each component of the scientific inquiry method.

What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?

Reading: See list attached

Viewing: Brainpop, Bill Nye The Science Guy, Behind The News

Analysis: analysing results from experiments

Presenting research: Presentations on one of the inquiry questions chosen by the students.

Writing: : Writing experiments based upon the scientific inquiry method. Writing procedures (eg. Making Lemonade).

Collecting data: interviewing people about benefits of science

Acquisition of knowledge: Searching the interenet to investigate the individual inquiries.

Communication Skills/Communicators: Presentations on personal experiment/inquiry results.

Thinkers: Order appropriate steps of the scientific inquiry method with given situations as a scientist

Reflectors: Write reflections on experiment results and what was learnt.

6. To what extent did we achieve our purpose?

Assess the outcome of the inquiry by providing evidence of students' understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included.

The weekly (combined class) labs worked well as did the accompanying lab reports.

The Science Demonstration Day was quite successful as the students produced work of a high standard and were able to share their knowledge confidently.

How you could improve on the assessment task(s) so that you would have a more accurate picture of each student's understanding of the central idea.

We were pleased with the outcomes of the assessment tasks used and though that they accurately depicted the students' knowledge.

What was the evidence that connections were made between the central idea and the transdisciplinary theme?

Through regular experiments and their summative assessment science demonstration the students were indeed able to gleam a greater understanding of "How the World Works."

7. To what extent did we include the elements of the PYP?

What were the learning experiences that enabled students to:

- Develop an understanding of the concepts identified in "What do we want to learn?"

Form: Imagine you are from another planet and have never seen a plant before. What questions would you ask to find out more about them? What steps of the scientific inquiry method would you follow and in what order? Conducting science experiments and reflecting upon the scientific inquiry method

Function: identifying appropriate order of the scientific inquiry method given certain situations. Conducting science experiments and reflecting upon the scientific inquiry method.

Connection: Discuss and explain how our lives are connected with science and how science is beneficial to our lives. Brainstorming how science and maths are connected.

- Demonstrate the learning and application of particular transdisciplinary skills?

Acquisition of knowledge: searching websites listed in section 5 to investigate individual inquiries.

See booklist attached.

Research skills: As above

Social skills: Working in groups/pairs during science labs.

Writing: experiments based upon the scientific inquiry method and writing procedures.

Communication Skills: Presentations on individual experiment results

- Develop particular attributes of the learner profile and/or attitudes?

Communicators: presenting research findings and experiment results

Thinkers: order appropriate steps of the scientific inquiry method with given situations as a scientist

Reflective: write reflections on experiment results and what was learnt.

Curiosity: create scientific questions to investigate

8. What student-initiated inquiries arose from the learning?

Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.

Wonderwall

Students were given a choice for their investigation for their summative assessment from a broad range of options selected by the teachers.

At this point teachers should go back to box 2 "What do we want to learn?" and highlight the teacher questions/provocations that were most effective in driving the inquiries.

1. Why do we need science / scientists?
2. What are the benefits of science?
3. How do we investigate scientifically?
4. How do scientists gather evidence and why?

What student-initiated actions arose from the learning?

Record student-initiated actions taken by individuals or groups showing their ability to reflect, to choose and to act.

The students were able to make clear choices about what area of science they wanted to explore further and acted positively on those decisions.

9. Teacher notes

Summative Assessment Rubric: I am a Scientist

CRITERIA	SUPER	GOOD	SO-SO	BELOW STANDARD
Poster	Poster includes: <ul style="list-style-type: none"> • <u>All</u> information from lab report • Photographs or drawings of your experiment • Special results form • Scientific information about your experiment 	Poster is missing 1 of the following requirements: <ul style="list-style-type: none"> • <u>All</u> information from lab report • Photographs or drawings of your experiment • Special results form • Scientific information about your experiment 	Poster is missing 2 of the following requirements: <ul style="list-style-type: none"> • <u>All</u> information from lab report • Photographs or drawings of your experiment • Special results form • Scientific information about your experiment 	Poster is missing 3 or more requirements: <ul style="list-style-type: none"> • <u>All</u> information from lab report • Photographs or drawings of your experiment • Special results form • Scientific information about your experiment
Neatness/Appearance	Poster has the following qualities: <ul style="list-style-type: none"> • Typed or handwritten information has been checked for capital letters, spelling and end marks. • Drawings or photos are securely attached to poster • Sections are neatly and visibly labeled • Your name is on the poster 	Poster is missing 1 of the following requirements: <ul style="list-style-type: none"> • Typed or handwritten information has been checked for capital letters, spelling and end marks. • Drawings or photos are securely attached to poster • Sections are neatly and visibly labeled • Your name is on the poster 	Poster is missing 2 of the following requirements: <ul style="list-style-type: none"> • Typed or handwritten information has been checked for capital letters, spelling and end marks. • Drawings or photos are securely attached to poster • Sections are neatly and visibly labeled • Your name is on the poster 	Poster is missing 3 or more of the following requirements: <ul style="list-style-type: none"> • Typed or handwritten information has been checked for capital letters, spelling and end marks. • Drawings or photos are securely attached to poster • Sections are neatly and visibly labeled • Your name is on the poster
Oral Explanation of the Scientific information	Student: <ul style="list-style-type: none"> • Answered questions from guests • Shared scientific knowledge • Demonstrated experiment • Spoke clearly 	Student is missing 1 of the following requirements: <ul style="list-style-type: none"> • Answered questions from guests • Shared scientific knowledge • Demonstrated experiment • Spoke clearly 	Student is missing 2 of the following requirements: <ul style="list-style-type: none"> • Answered questions from guests • Shared scientific knowledge • Demonstrated experiment • Spoke clearly 	Student is missing 3 of the following requirements: <ul style="list-style-type: none"> • Answered questions from guests • Shared scientific knowledge • Demonstrated experiment • Spoke clearly